Nov. 29, 1927. 1,650,826

E. FARGO

FOLDABLE WHEEL CHAIR

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Fig. 1.

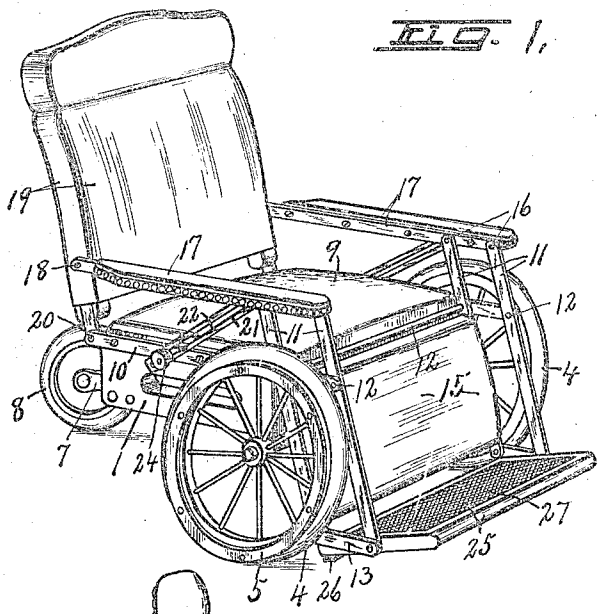
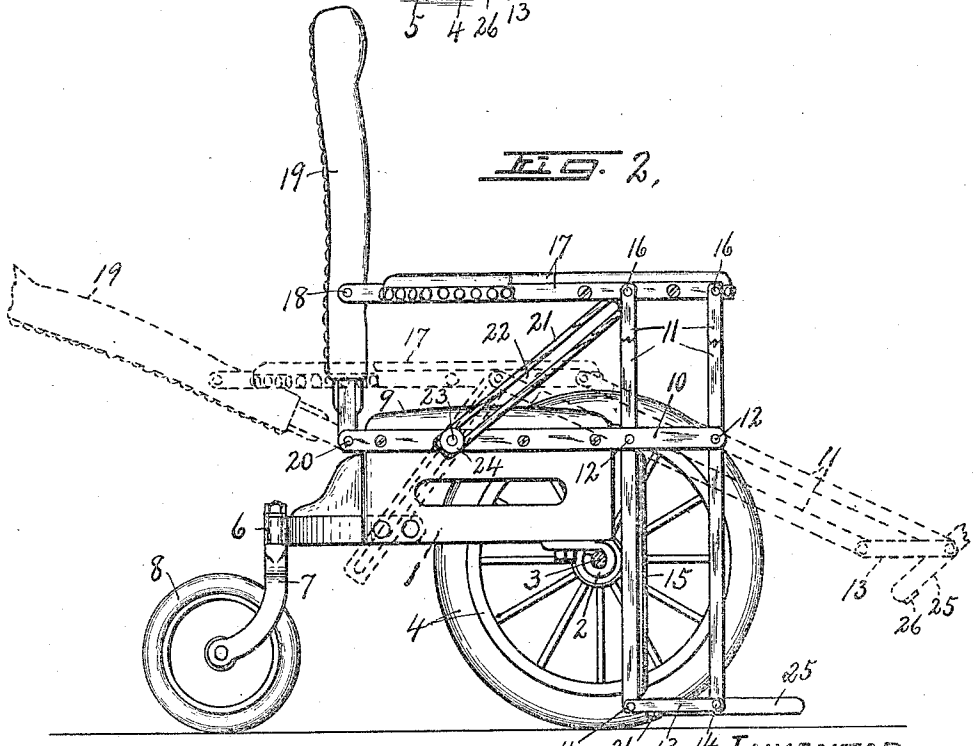


Fig. 2.



INVENTOR
Edwin Fargo

BY Dennison & Thompson
ATTORNEYS

WITNESS
H. Hurst

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UNITED STATES PATENT OFFICE.

EDWIN FARGO, OF SYRACUSE, NEW YORK.

FOLDABLE WHEEL CHAIR.

Application filed July 24, 1924. Serial No. 727,948.

This invention relates to a wheel chair of the folding type adapted to be used by invalids or others, in an upright or reclining posture.

The main object is to provide a chair of this character in which the seat and arm rests will be held in a substantially horizontal position, while permitting the adjustment of the back and foot rests to different inclinations or angles from a substantially vertical to a substantially horizontal position and vice versa.

Another object is to provide adjustable means for bracing and holding the folding members in their different positions of adjustment.

A further object is to enable the seat to remain in substantially the same horizontal position while the other parts are being adjusted.

A still further object is to enable the foot rest to conform to different positions of the feet during said adjustments.

Other objects and uses relating to specific parts of the chair will be brought out in the following description.

In the drawings:—

Figure 1 is a perspective view of a folding chair embodying the various features of the invention.

Figure 2 is an enlarged longitudinal vertical sectional view, partly broken away, of the same chair with the folding parts in their normal positions, by full lines and in their maximum reclining positions by dotted lines.

As illustrated, this chair comprises a main supporting frame —1— having front end bearings —2— for receiving and supporting an axle —3— which carries a pair of wheels —4—, said wheels being provided with annular rings —5— secured to the outer end faces thereof for propelling the chair by hand.

The rear end of the frame —1— is provided with a single central bearing —6— carrying a downwardly and rearwardly inclined steering post —7— which is preferably forked or bifurcated and is adapted to receive and support a suitable steering wheel —8— some distance to the rear of and midway between the wheels —4—.

The main frame —1— is adapted to receive and support a suitable seat or cushion —9— and is provided with opposite side bars —10— extending forwardly and rearwardly in a substantially horizontal plane below the upper face of the seat —9— and above the axle —3—.

These side bars —10— extend forwardly and rearwardly beyond the seat —9— and serve as a means of support for some of the folding parts presently described.

Opposite pairs of parallel bars or levers —11— are pivoted intermediate their ends at —12— to the forward extensions of the bars —9— and extend some distance above and below said bars for receiving and supporting at their lower ends, suitable connecting links —13—, their upper ends being pivotally attached at —16— to opposite arms —17— of the chair.

The rear ends of the arms —17— are pivotally attached at —18— to the intermediate portions of opposite sides of a back rest —19— which in turn is pivotally supported at its lower ends at —20— to the rearward extensions of the bars —10—.

A pair of braces —21— are pivoted at their upper ends to the pivotal bolt —16— and are provided with longitudinal lengthwise slots —22— for receiving clamping members as bolts —23— on the side bars —10—, said bolts being provided with hand nuts —24— by which the braces may be clamped in different positions of adjustment as the folding parts are adjusted to different positions.

The links —13— are pivotally connected at —14— to the lower ends of the corresponding pairs of parallel arms —11— to assist in holding said arms in parallelism, it being understood that the distance between the pivots —14— and also between the pivots —12— and between the pivots —16— at each side of the chair are spaced equal distances apart for maintaining the parallelism of the bars —11— in all positions of adjustment.

It will also be observed that the distance between the pivots —12— and —16— at each side of the chair is equal to the distance between the pivots —20— and —18— connecting the rear ends of the arms —17— and bars —10— to the back rest —19— thereby maintaining a parallel relation between said bars —10— and arms —17— in all positions of adjustment of the arms and back rest.

A leg rest —15— is secured to and between the lower portions of the rear bars —11— directly in front of the seat —9— and main frame —1—, and also in front of the axle

—3— wholly between the bars —10— and links —13— so as to move with the arms —11— as the latter are adjusted to different angles.

A foot rest —25— is pivoted intermediate its front and rear edges to the lower ends of the front upright arms —11— by the same pivotal bolts —14— which connects said arms to the links —13—, so as to swing freely about the axis of said pivot between said arms and to different angles relatively thereto, as the folding parts of the chair are adjusted to different positions, the rear edges of the foot rest being provided with laterally projecting shoulders —26— adapted to engage the undersides of the links —13— for limiting the forward and downward swinging movement of the front edge of the foot rest to a substantially horizontal position when the folding parts are adjusted to their normal upright positions as shown by full lines in Figure 2, and at the same time, permitting the front edge of the foot rest to rock upwardly and rearwardly independently of the links —13— and to different angles relatively to the arms —11—.

The object of this freedom of movement of the foot rest —25— is to enable it to automatically adjust itself to the feet of the occupant when the folding parts are adjusted to various positions according to the convenience of the occupant.

The upper ends of the braces —21— are pivotally connected to the arms —17— by the same pivots —16— which connect the upper ends of the rear arms —11— to the arm rests —17—, said braces inclining downwardly and rearwardly from their upper ends across the bars —10— between the back rest —19— and rear arms —11— and are free to slide across the bars —10— as the folding parts are adjusted to different positions, the clamping nuts —24— serving to tighten and loosen the braces and thereby to hold and release the folding parts in and from their different positions of adjustment.

The seat —9—, back rest —19— and leg rest —15— are upholstered in any suitable manner for the comfort and convenience of the occupant, while the foot rest —25— is provided with a suitable tread-mat —27— to avoid slipping of the feet thereon and also for the greater convenience and safety of the occupant.

The pivot connecting the rear upright arms —11— to the horizontal frame bars —10— preferably extend entirely across the front edge of the seat —9— as shown in Figure 1 to assist in bracing the bars —10— against relative lateral movement.

Operation.

It will be noted that the various folding parts are assembled in such manner that the back rest —9— and leg rest —15— may be folded from substantially vertical positions to approximately horizontal positions so that the chair may be used in various inclined positions or extended to be used as a couch, and that in all of these various positions of adjustment the arms rests —17— remain in a substantially horizontal position while the freedom of movement of the foot rest —25— permits it to readily conform to the varying positions of the feet from a horizontal to a substantially vertical position or any intermediate positions of inclination, all of which increases the safety and convenience of the apparatus and enables the occupant to control the movements of the chair through the medium of the hand rings —5—.

I claim:

In a folding chair, a rigid seat, hinged back and leg rests, link and arm connections between the back and leg rests, a foot rest of rectangular formation pivotally supported intermediate its front and rear edges between the links at the lower ends of the leg rest for pivotal movement independently of the back and leg rests and outwardly directed lugs at the under side of the opposite ends of the foot rest at the inner edge thereof adapted for engagement with the under sides of the adjacent links to limit downward movement of the outer edge of the foot rest.

In witness whereof I have hereunto set my hand this 16th day of July, 1924.

EDWIN FARGO.